

INCH-POUND

MIL-DTL-16878/19B
11 August 2000
SUPERSEDING
MIL-W-16878/19A(NAVY)
11 September

DETAIL SPECIFICATION SHEET

WIRE, ELECTRICAL,
POLYVINYL CHLORIDE (PVC) INSULATED, POLYAMIDE JACKET,
105 °C, 3000 VOLTS
(NOT FOR NAVY SHIPBOARD USE)

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-16878G.

REQUIREMENTS.

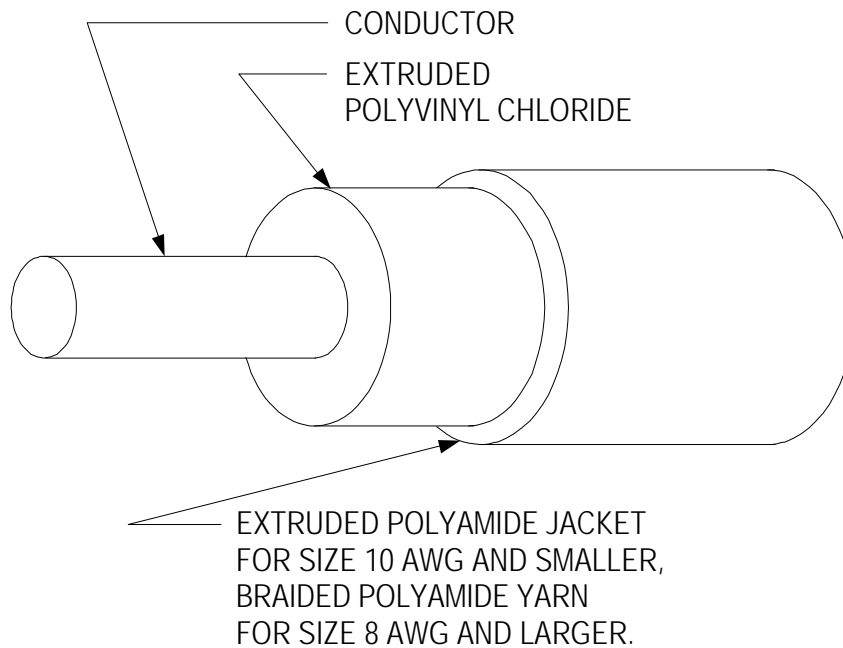


FIGURE 1. Wire configuration.

Note: Not for Navy shipboard use or use in aerospace applications.

TABLE I. Wire configuration and dimensions.

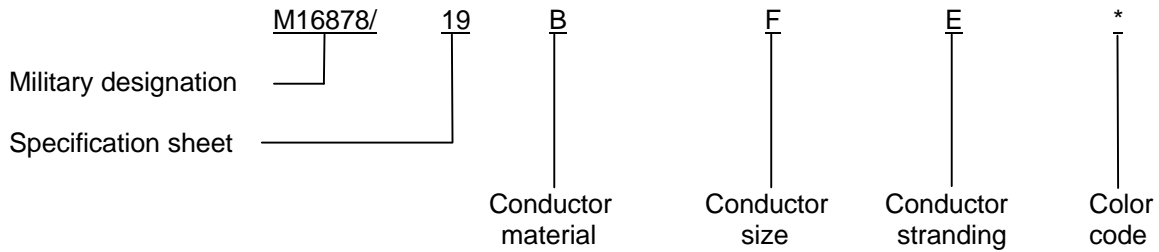
PIN ^{1/}	Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire diameter (inch)		Polyamide thickness (inch)	
			Material ^{2/, 3/}	Coating		Min	Max	Min	Max
M16878/19BEA*	24	1 X 24	Copper	Tin	.0201	.076	.095	.0025	.0045
M16878/19DEA*	24	1 X 24	H.S.C.A	Silver	.0201	.076	.095	.0025	.0045
M16878/19BEB*	24	7 X 32	Copper	Tin	.0240	.080	.099	.0025	.0045
M16878/19DEB*	24	7 X 32	H.S.C.A	Silver	.0240	.080	.099	.0025	.0045
M16878/19BEE*	24	19 X 36	Copper	Tin	.0260	.080	.099	.0025	.0045
M16878/19DEE*	24	19 X 36	H.S.C.A	Silver	.0260	.080	.099	.0025	.0045
M16878/19BFA*	22	1 X 22	Copper	Tin	.0254	.081	.101	.0025	.0045
M16878/19DFA*	22	1 X 22	H.S.C.A	Silver	.0254	.081	.101	.0025	.0045
M16878/19BFB*	22	7 X 30	Copper	Tin	.0300	.086	.105	.0025	.0045
M16878/19DFB*	22	7 X 30	H.S.C.A	Silver	.0300	.086	.105	.0025	.0045
M16878/19BFE*	22	19 X 34	Copper	Tin	.0320	.088	.105	.0025	.0045
M16878/19DFE*	22	19 X 34	H.S.C.A	Silver	.0320	.088	.105	.0025	.0045
M16878/19BGA*	20	1 X 20	Copper	Tin	.0320	.088	.107	.0025	.0045
M16878/19DGA*	20	1 X 20	H.S.C.A	Silver	.0320	.088	.107	.0025	.0045
M16878/19CGA*	20	1 X 20	C. C. steel	Tin	.0320	.088	.107	.0025	.0045
M16878/19BGB*	20	7 X 28	Copper	Tin	.0380	.094	.113	.0025	.0045
M16878/19DGB*	20	7 X 28	H.S.C.A	Silver	.0380	.094	.113	.0025	.0045
M16878/19BGE*	20	19 X 32	Copper	Tin	.0410	.094	.113	.0025	.0045
M16878/19DGE*	20	19 X 32	H.S.C.A	Silver	.0410	.094	.113	.0025	.0045
M16878/19BHA*	18	1 X 18	Copper	Tin	.0403	.096	.116	.0025	.0045
M16878/19BHB*	18	7 X 26	Copper	Tin	.0490	.105	.124	.0025	.0045
M16878/19BHE*	18	19 X 30	Copper	Tin	.0510	.105	.124	.0025	.0045
M16878/19BJA*	16	1 X 16	Copper	Tin	.0508	.018	.129	.0030	.006
M16878/19BJE*	16	19 X 29	Copper	Tin	.0590	.116	.137	.0030	.006
M16878/19BJF*	16	26 X 30	Copper	Tin	.0620	.119	.140	.0030	.006

TABLE I. Wire configuration and dimensions - Continued.

PIN ^{1/}	Wire size	Stranding	Conductor		Conductor Diameter (nominal) (inch)	Finished wire diameter (inch)		Polyamide thickness (inch)	
			Material ^{2/, 3/}	Coating		Min	Max	Min	Max
M16878/19BKA*	14	1 X 14	Copper	Tin	.0641	.121	.142	.0030	.006
M16878/19BKE*	14	19 X 27	Copper	Tin	.0720	.129	.150	.0030	.006
M16878/19BKH*	14	41 X 30	Copper	Tin	.0800	.137	.158	.0030	.006
M16878/19BLA*	12	1 X 12	Copper	Tin	.0808	.159	.171	.0030	.006
M16878/19BLE*	12	19 X 25	Copper	Tin	.0920	.162	.183	.0030	.006
M16878/19BLG*	12	37 X 28	Copper	Tin	.0890	.159	.180	.0030	.006
M16878/19BLJ*	12	65 X 30	Copper	Tin	.0980	.168	.189	.0030	.006
M16878/19BMA*	10	1 X 10	Copper	Tin	.1019	.174	.197	.0040	.008
M16878/19BMG*	10	37 X 26	Copper	Tin	.1110	.183	.206	.0040	.008
M16878/19BMK*	10	105 X 30	Copper	Tin	.1270	.199	.222	.0040	.008
M16878/19BNL*	8	133 X 29	Copper	Tin	.1690	.253	.280	.0060	.012
M16878/19BPL*	6	133 X 27	Copper	Tin	.2130	.300	.329	.0070	.014
M16878/19BRL*	4	133 X 25	Copper	Tin	.2680	.362	.396	.0070	.014
M16878/19BSP*	2	665 X 30	Copper	Tin	.3420	.436	.470	.0070	.014
M16878/19BTR*	1	817 X 30	Copper	Tin	.3820	.486	.520	.0070	.014
M16878/19BUS*	0	1045 X 30	Copper	Tin	.4310	.525	.545	.0070	.014

Notes:

^{1/} PIN stands for part or identifying number (see figure 2).^{2/} H.S.C.A. stands for high-strength copper alloy.^{3/} C.C. stands for copper-clad.

FIGURE 2. Example of PIN (see MIL-DTL-16878G).

Configuration and dimensions:	See figure 1 and table I
Operating voltage:	Up to 3000 volts
Operating temperature:	Up to 105 °C
Insulation:	Polyvinyl chloride
Insulation jacket:	Polyamide
Spark test voltage:	8.0 kV
Impulse dielectric test voltage:	12.0 kV, or 8.5 kV using the 3.0 kHz spark test
Dielectric withstanding voltage:	6.0 kV
Insulation resistance:	$IR = K \log_{10} D/d$
	Where: IR = Minimum insulation resistance in megohms per 1000 feet at 20 °C
	K = 2,000
	D = Maximum average diameter of finished wire
	d = Conductor diameter
Cold bend:	Condition 4 hours at -54±1 °C (see table II)

TABLE II. Cold bend mandrel sizes.

Wire size	Cold bend mandrel diameter (inches, maximum)
24, 22	2
20 through 14	3
12, 10	4.5
8	6
6, 4	10
2, 1, 0	18

Surface resistance:	5 megohms-inches (min) for braided jacket (size 8 AWG or larger)
Heat resistance:	Condition at 150 °C, Cracking of the jacket shall constitute a failure
Heat aging:	25 percent change (maximum) in 96 hours at 135 °C
Insulation tensile strength:	1800 pounds force per square inch (minimum)
Insulation elongation:	100 percent (minimum)

CHANGES FROM PREVIOUS ISSUE. Marginal notations are not used in this revision to identify changes with respect to the previous issue because of the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:
Navy - SH
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC
(Project 6145-2193-012)

Review activity:
Navy - AS